The Builder.

SATURDAY, OCTOBER 7, 1854.

IN continuation of the inquiry commenced last week, we return to a consideration of the Schools and School-houses of the United States.*

Mr. Barnard pleads strongly, and with justice, for a proper gradation of schools. We have already alluded to the Primary Schools, which may be supposed the fit receptacles for children from three to eight years of age. The next grade might be called Secondary Schools, designed to receive children of about eight years old, and carry them on till they are ready for the High School, which ought to afford that comprehensive course of instruction which will fit the pupil for the world's practical struggle; or if he be designed for a learned profession, carry him to the threshold of college. The author also thinks that intermediate schools or departments are needed in large districts, to receive a class of pupils who are too old to be continued, without wounding their self-esteem, in the school below, or interfering with its methods of discipline and instruction, and are not prepared in attainments and habits of study, or from irregular attendance, to be arranged in the regular classes of the school above.

Some of these divisional arrangements are no doubt solely applicable in the country for which they are intended. But Mr. Barnard hints at one feature which is of equal importance in America or our own agricultural districts. This is a school or *department* for those who cannot attend school regularly, or for only a short period of the year, or who may wish to attend exclusively to a few studies. There is no place for this class of scholars in a regularly constituted, permanent school.

The school systems of Boston and Philadelphia are magnificent. Before jotting down some notes on the edifices themselves, we shall present in a condensed form, some statistics which will give a comparative idea of the cost and elaborate mechanism, for training purposes, kept up in those quarters.

All the public schools of Boston are under the care and superintendence of a board or committee, consisting of the mayor, the president of common council, and twenty-four other persons, annually elected, two for each ward.

The board employs a superintendent, to act under their control and direction, at a salary of 2,500 dollars; a primary school committee, to take particular charge of the primary schools; a committee of five members on the Latin and English high school; a committee of three members on each grammar-school; and a committee on school-houses, also of three members. The teachers are elected annually by the board, and their salaries are fixed for the year.

The system now (1854) embraces 196 primary schools, 22 grammar-schools, 1 English high school, 1 Latin school, and 1 normal school.

The primary schools were instituted in 1818, and now include about 12,000 children, over four and under eight years of age, under female teachers. In these schools the alphabet, pronouncing and spelling words, numeration and combination of numbers, the stops and marks, mental arithmetic, and reading, are attended to. The cost of these schools, in 1853, for the salaries of teachers, was 62,508·82 dollars, or 5·45 dollars per scholar; for incidental expenses, 22,231·46 dollars, or 1·85 dollars per scholar; or altogether 7·30 dollars per scholar, exclusive of expenditure for school-houses.

* See p. 505, *ante*.

There are at present twenty-two grammar-schools (including three independent schools in the same building, and bearing the same name as the other schools), with 10,237 scholars. These schools are not at present organised on a uniform plan; but efforts are being made to constitute each grammar-school of about 700 to 800 children, divided into twelve or thirteen equal divisions, of about sixty pupils each, and each division into four large classes. Each school is to be under the charge of one principal teacher, with a requisite number of assistants, one to each room. The course of instruction embraces the common branches of an English education. In these schools the boys remain until they are fifteen years of age, or until they pass to the English, high, or Latin school. Girls can remain till they are seventeen. In 1852-3, the cost of the grammar-schools, for salaries and teachers, was 130,531·18 dollars, or 12·63 dollars per scholar; 35,849·82 dollars for incidental expenses; or 3·47 dollars per scholar; making together 16·10 dollars per scholar, exclusive of the expenditure on school-houses.

The system of public schools in Philadelphia, has grown up in a brief period of time, from very small beginnings to its present gigantic, yet harmonious proportions.

The Grammar-school House in New-street, Philadelphia, is a good specimen of the peculiarities which distinguish the most recently erected buildings in that city. It was built according to plans and specifications made by Mr. Samuel Sloan. It is 81 feet 6 inches in front, by 65 feet 6 inches deep, and three stories high, each story being 15 feet in the clear. The basement, windows, and door trimmings are of the best blue marble, finely cut and polished, and the walls are of the best pressed brick. All the outside walls are laid with a hollow space of 4 inches, the inner and the outside walls being tied together with alternate bricks in the beading courses.

Instead of one large room, with two or more class-rooms in connection on each floor, this school has each story divided into four apartments, of a size suitable for the accommodation of the number of pupils assigned to one teacher, with *moveable glass partitions*. By this arrangement the principal can have a full view of all the pupils and assistants on the same floor, while each division is protected from annoyance or interruption from the exercises of the other. By removing the glazed partitions,—one-half of which is admitted into the wainscotting above, and are so hung as to balance each other, the several apartments are thrown into one, and the whole school is then within the hearing and voice of the principal. The building is warmed by three of Chilson's furnaces of the largest size, and ventilated by a shaft extending from the cellar to the top of the roof, with lateral flues and openings from each story, with a stove at the base in the cellar to warm the shaft, to quicken the discharge of the foul air, both in winter and summer. Those of our readers who are specially interested in the subject of ventilation will find this patent of Chilson's fully described in the treatise. The Boston and Philadelphia modes of ventilation differ, the account of the practice in the former city being prefaced by a report of the School Committee appointed to investigate this important question. Their views seem to have been most thoroughly developed in the heating and ventilating arrangements of the Primary School in Sheafe-street, of which building Mr. Barnard presents transverse sectional elevations.

The plan and description of the Bowdoin Grammar School-house (also in Boston), present the following features:—It was completed in 1848, and with the yard occupies an area of about 75 feet by 68 feet, bounded on each of the four sides by a street. It is built of brick, with a basement story of hammered granite, and measures 75 feet 9 inches extreme length, by 54 feet 6 inches extreme breadth—having three stories, the first and second being 13 feet, and the third, 15 feet high in the clear.

The third story is finished into one hall, 72 feet long by 38 feet wide, with seats and desks for 180 pupils. On the south side of this hall there are two recitation-rooms, each 16 feet by 12 feet, and a room for a library, &c. There are three rooms of the same size on the two floors below.

The second story is divided into two rooms by a partition wall, each of which is 35 feet by 38 feet, and accommodates 90 pupils, and so connected by sliding doors that all the pupils of both schools, can be brought under the eye and voice of the teacher.

The first story corresponds to the second, except that there are no sliding doors in the partition, and no connection between the room except through the front entry. The two rooms on this floor have each seats and desks for 100 pupils.

Chilson's furnaces are employed. But to accommodate pupils who come to school with wet feet or clothes, there is an open fire in a grate in one of the recitation-rooms.

This school is for girls only, and consists of two departments, one of which is called the grammar department, and the other the writing department; the master of each department being independent of the other.

In the former article, we alluded to the Quincy Grammar School, when quoting the remarks made by the mayor of Boston, at its opening.

"The ground plan is in the form of a cross, the exterior dimensions of the body being 80 feet by 58 feet, the end fronting on Tyler-street. The wings are 12 feet in front by 36 feet deep. It is four stories high, with a basement 8 feet in the clear, for the furnaces and fuel, and an attic for gymnastic exercises.

These four school-rooms are of nearly the same size, averaging about 31½ feet by 26½ feet, and 13 feet high. Each room is lighted by two windows at the side, and two at the end, and has a platform for the teacher, 24 feet by about 5½ feet, with one end towards the entrance from the corridor, and on the other end is placed a book-case, 3½ feet by 8 feet, with glazed doors, facing the entrance.

Each room accommodates fifty-six pupils, one desk and chair being placed on a small moveable platform for a monitor.

The building is warmed by four furnaces placed in the basement, two being placed at the middle of each end, each being intended to warm the three rooms immediately over it, the cast-iron chimneys being relied upon for heating the hall.

Emerson's system of ventilation has been introduced since the building was finished, each room having a separate air-duct to the roof, 14 inches square."

The history of public schools in New York, shows an advance as rapid as any of those cases already cited. Prior to 1805, the only institutions of this nature were those sustained by the different religious sets, with the addition of the Female Association for the relief of the poor, set afoot in 1802. Those means were scanty, and the course of construction wholly inadequate. In 1805, a school was organized and incorporated by the Legislature, for behoof of the children of those who, belonging to no religious denomination, were without education. This was taught on the Lancasterian system. Three years later the institution was placed upon a larger basis by government, as the "Free School Society of New York;" the corporation gave a site, and entrusted to the society's keeping, the education of the almshouse children. The methods of instruction were modified in 1821, in consequence of the correspondence of a committee with distinguished European educators.

In 1828, the first primary or infant school was established with signal success; and the following year the scholars of the public school society were placed on the basis of "common schools," open to all, not as a matter of charity, but of right, and supported, like other public interests, by a general tax. This tax was *one-eightieth of one per cent.* and was the first tax raised by the city of New York for the support of common schools; the memorial by which the attention of the common council was called to the matter, having been signed by the wealthier citizens.

After a variety of modifications and enlargements, the schools, and property of the public school society, were at length, in 1853, transferred to the "Board of Education;" and the society, after years of faithful, disinterested, and useful service in building up an imposing system of public instruction, was abolished.

The Free Academy of the city of New York was established by the Board of Education, in 1847, in pursuance of authority granted by the Legislature on the memorial of the Board, on condition that the question of its establishment should be submitted to the people of the city, and a majority of the votes given should be in favour of the proposition.

"The dimensions of the building are as follow:—The length of the building, exclusive of all projections, is 125 feet, and the breadth 80 feet. The height, to the eaves, 65 feet, and to the top of the gable, 100 feet. The height of the towers, 110 feet.

The building is divided into a basement, three stories, and a great hall under the roof. The basement is 9 feet in height, and is arched to afford ground for exercise in bad weather. In it, also, are the janitors' lodgings, the chemical laboratory, and the closets for the hats and clothes of the students. The first, second, and third stories are divided into four great rooms by two wide, spacious halls, which are carried through the centre of the building longitudinally and transversely. Two of these rooms, on each floor, are again divided, affording smaller rooms for recitation, &c. Above these stories is the great hall, 125 feet long by 60 feet in breadth, divided by the king and queen posts of the roof, which are made ornamental, into three aisles, the centre one of which is 40 feet in height, and the two side aisles each 20 feet in height. The ceiling of this room is of wood immediately under the roof, of which it forms part, and it is ornamented with carved ribs of wood, in the manner of the old college halls at Oxford and Cambridge."

Our professional readers will have gathered from some of these data, that the style adopted in this building, is that of the town-halls and colleges of the fourteenth century. The architect, Mr. Renwick, of New York, in a letter to the president of the Board of Education, states his reasons for the selection of this style.

Regarding the proper development of their public high schools, all classes of American educators, however much they may differ on other points, seem anxious and agreed. As we have already explained, this class of school is intended for pupils who have advanced from the lower grades. It is a common school, in the same sense as the district and primary ones, but its special purpose is to make *good* education *common*. The school, to be common practically, must be both cheap and good. To be cheap, its support must be provided for wholly out of a fund, or by a public tax. And to justify the imposition of a public tax, the whole community must share in the benefit. These institutions must exert a powerful influence for good if well managed, and there seems to be general satisfaction concerning their administration and results. The description of a building of this class is the last excerpt we shall at present take from Mr. Barnard's Epitome on School Architecture. The Latin and English High School of Salem, in its interior has no parallel in the country for ornament, and a certain blending of elegance with usefulness in its appointments. In these features it somewhat resembles the schools of Holland and Germany, which often contain paintings of no inconsiderable excellence and value, that the eye may be educated as well as the mind, and the union of æsthetics and practical knowledge may, if possible, be effected.

The Latin School is believed to be the first Free School established in the United States, and probably in the world, where *every person* within certain geographical limits, and possessing certain requisites of study, has an equal right of admission, free of cost. It was founded in 1637, and has continued without interruption, giving a thorough preparation to students for college, to the present day. The English High School was established in 1827.

The walls of the Latin Grammar School are enriched and adorned with inscriptions in the Greek and Latin language and character. These are not merely apothegms of wisdom, but mementoes of duty; they are fitted to inspire the pupils with noble sentiments, and are the appropriate "*Genius of the Place.*"

The interior of the English High School is adorned in a manner no less appropriate and useful.

In the centre of the ceiling is the circle of the zodiac, 29 feet in diameter. The ventilator, 3½ feet in diameter, represents the sun, the spots being designated upon the nucleus in conformity with the latest telescopic observation. The divergence of the solar rays is also fully exhibited. The earth is represented in four different positions, indicating the four seasons. The moon also is described in its orbit, and its position so varied as to exhibit its four principal changes. The globular figure of the earth is shown, and lines are inscribed upon it representing the equator, tropics, and polar circles The hour lines are also marked and numbered The border of the circle represents upon its outer edge the signs of the zodiac, with their names, and within, the names of the months. The signs are divided into degrees, and the months into days, both of which are numbered. The thirty-two points of the compass are marked upon the inner edge, the true north and magnetic north both correctly indicated, — the variation of the needle having been ascertained by a recent series of observations.

The circle of the zodiac, as thus described, being enclosed within a square panel, the exterior spaces in the four angles are filled up with other astronomical illustrations.

Upon the four sides of the room, in the space above the windows and doors, eight panels are described, containing as many diagrams, which illustrate physical phenomena.

The diagram in the large panel upon the north side of the recitation platform, represents the relative height of the principal mountains, and the relative length of the principal rivers on the globe. The mountains and rivers are all numbered, and scales of distances are attached, by which the heights and lengths can be readily ascertained. The diameter and rotation of the sun are inscribed upon the edge of the circular recess, beneath the ventilator.

Over the frontispiece, which surmounts the recess upon the teacher's rostrum, is a scroll, bearing the inscription—

"Order is Heaven's first Law."

A motto equally appropriate, whether viewed as explanatory of the celestial phenomena which are figured upon the walls, or as suggesting the principle which should guide the operations of the school.

THE PRIORY CRYPT OF ST. JOHN'S CHURCH, CLERKENWELL.

Among other antiquities of the Knights Hospitallers' Priory in Clerkenwell still remaining, is the crypt beneath St. John's Church, which is situate in the north-east angle of St. John's-square. In continuation of our series of crypts remaining in London we give a view of it, and we subjoin some particulars, for which we are indebted to Mr. W. P. Griffith.

The original church consisted of nave and aisles, transepts, a great bell-tower, graven, gilt and enamelled, a choir, &c. The present church is a part only of the ancient choir, and beneath it is the crypt, which is of the semi-Norman and Early English periods. With the exception of the crypt, all the priory (including St. John's Gate) was destroyed in 1381 by the rebels of Essex and Kent, who set fire to the buildings, causing them to burn for seven days. After this calamity the priory was rebuilt, Prior Docwra completing it in 1504. Docwra's church was in the Perpendicular style, and grafted upon the Early English crypt. Shortly after the restoration of the priory, Henry VIII. suppressed it: it was, however, not destroyed, but "employed as a store-house for the king's toils and tents, for hunting, and for the wars," &c.; and in the 3rd of King Edward VI. the church, for the most part, the great bell-tower, &c. were undermined and destroyed with gunpowder, and the stone was employed for building the lord protector's (Somerset) house in the Strand. That part of the choir which remained, with some side chapels, was closed up at the west end (next St. John's-square), and otherwise repaired, by Cardinal Pole, in the reign of Queen Mary; and Sir Thomas Tresham, knt. was made prior, with restitution of some lands; but it was again suppressed in the first year of Queen Elizabeth.

In 1721 Simon Michell converted the remains of the ancient structure into the present church (St. John's Church), which is the second of Queen Anne's churches, in order of the time of consecration.

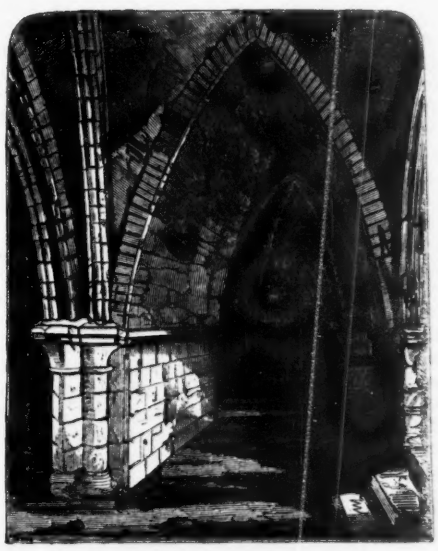
The crypt comprises a central avenue 16 feet 3 inches in width, and 12 feet in height, with an aisle on each side, extending from east to west, and is (with the aisles) of the same extent and length as the present church above. The west end of the crypt is bricked up: it originally extended westward, which has been proved from time to time when excavating for drains, &c.

The most interesting remaining portions of the crypt comprise the central avenue and a small compartment on each side of it by the entrance at the east end. The compartment on the south side is bricked up, having been converted for many years into a "private vault."

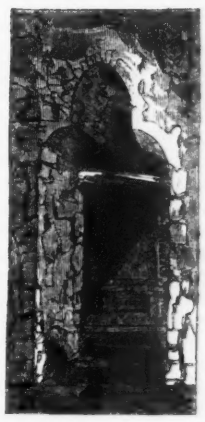
The entrance to the crypt is at the east end by a flight of stone steps beneath a modern vestry. The crypt appears to have been originally above ground, and not subterraneous: an entrance to it may be seen in Hollar's view of the east end as it appeared in 1661 from St. John's-street, with the hospital gardens and boundary wall.

The central portion of the crypt consists of four severeys or bays: two are simple and plain, being semi-Norman, and two (towards the east) are Early English, and very perfect, the details and mouldings being worthy of a careful examination. The ribs of the Early English bays spring from triple-clustered columns 3 feet 9½ inches high in each angle of the bays, with moulded capitals and bases: an excavation has been just made, exposing the bases to view: the upper moulding is horizontally fluted similar to some Grecian Ionic bases. The central shafts of the clustered columns are pointed, and the diagonal ribs have three mouldings: the central one is pointed and the outer are rolls. This pointed bowtell occurs frequently in Semi-Norman and Early English work, and is coeval with the introduction of the pointed arch. Suspended from the keystone of each arch is an iron ring. On each side of the two western bays of the central aisle is a deeply-recessed pointed window: the opening was long and narrow, 3 feet 9 in. high, and 9 inches wide, and the inner splay is 7 feet 7 in. by 4 feet 2 in. wide: the wall is 4 feet thick. The trefoil-headed doorway, shown in the accom-

CRYPT OF ST. JOHN'S CHURCH, CLERKENWELL.



Part of North Aisle.



Trefoil-headed Doorway.

panying illustration, is on the west side of the north compartment, and has the large iron eyes of the door-hinges still remaining.

The original pavement of the crypt is 1 foot 5½ in. below the present level. The artificial ground appears to be clay, introduced in modern times to prevent the damp from rising.

In the south and east walls of the present church are remains of Prior Docwra's Perpendicular work, and the pews stand upon capitals, rib-mouldings, and other remains of the former church.

Beneath pew No. 82 are eight clustered capitals, with long flowing palm-leaves: these leaves were gilt upon a blue ground.

The priory enclosure-walls can still be traced, on the north, west, and south sides, and the modern dwellings in St. John's-square are mostly built upon the old rubble walls of the hospital: fragments of the ancient buildings are frequently discovered. There are still in existence, beneath the houses on the north side of the square, walls 7 feet in thickness, and containing splayed window openings. In old maps, St. John's-square is called St. John's Priory. It was the Priory-court, and enclosed by the ancient buildings.

This crypt in modern times (1762) has been rendered notorious by the detection of the imposture known as the Cock-lane Ghost.

The crypt, similar to others, has been converted into an unnatural receptacle for the dead to aid in destroying the living. There are now, however, but few coffins remaining, and there is no obstacle in the way of visitors.

ON CHURCH BELLS.

The following formed part of the paper read by the Rev. W. C. Lukis, at the meeting of the Wilts Archæological Society, already referred to. Mr. Lukis considered the subject under the following heads:—

1. Belfries; their condition, and the causes of their frequent dilapidation.
2. Bell founders and foundries.
3. The composition of bell-metal.
4. Method of casting and tuning bells.
5. Bell hanging.
6. Expenses of bells in early and present times.
7. Ancient bells.
8. Epigraphs or legends.
9. Bell-ringing.
10. Spoliation of bells temp. Reformation and subsequently.
11. Comparative scale of tenor bells.

We confine ourselves to a few of the heads.

Belfries.—Some persons apply this term to signify the whole tower: others limit its application to the part in which the bells are suspended; and others again to the room or space in which the ringers stand, which is either on the floor of the church, or in one of the stages of the tower. This is a matter of very little consequence; and I do not intend to speak of this part of the church further than just to remark by the way, that as it was clearly erected for the purpose of carrying bells, it is a matter for our grave consideration how it comes to pass that so many of our village churches should have their towers in so dilapidated a condition. I have seen several in the course of my Wiltshire rambles which are in so dangerous a state that the bells are forbidden to be rung. There can be no doubt that this arises from two causes. In the first place, bells for which the towers were generally constructed were not subjected to the same revolutions and tossings as now. They were swung to and fro, it is true, as I shall

explain presently, but very gently compared with the present wild summersets of change ringing, an art of comparatively recent date. Consequently, in constructing the towers, the architects of those days had not to take into their calculation the great vibration of the walls produced by the violent motion of the bells.

In the second place, and this I take to be the principal cause of the evil, churchwardens have been sadly negligent. With a little grease and new ropes allowed now and then, they have imagined that their duty to the bells and to the parish has been faithfully done, whereas mischief of a three-fold nature has been growing and increasing,—mischief to the building, to the bells, and to the parishioners; the one ending in its dilapidation and ruin; the second, in their utter destruction; and the third to the prejudice of their pockets. In a tower in this county I found three out of six bells broken, as I firmly believe, from this cause, and several peals of bells rendered nearly useless in consequence of the shaky state of the towers. As an instance of the way in which some, I may say many, churchwardens speak and act, I will mention, that I was warned by the parish clerk to be very careful where I stepped in the bell-loft, for, said he, "the tower be main crazy." On asking the churchwarden for the key of the church, and mentioning the clerk's humane warning, he said, "Sir, I have known the tower these forty years, and he never was no better than he is now. He's quite safe. I'll tell'ee what, sir; one day the bishop come, and he said, Muster Churchwarden, you've a very pretty church, and he's in very good order. Another day, another gentleman come, I think they call'un a rural dean, and he said, Muster Churchwarden, you've a pretty church, and he's sadly out of repair." When I returned the key I did not see the churchwarden, or I should have told him that in my humble opinion both the rural dean and the parish clerk were right; for I had seen very many churches and many belfries, but few in a worse condition.

Bells require very constant attention to keep them in proper ringing order. When you consider their enormous weight, the different parts of their harness, the iron and the wood of which it is composed, bolted and screwed together, the framework on which they hang, and in revolving which they violently shake and vibrate; and then reflect that the iron and the wood are both exposed to continual changes of atmosphere; and that, under one condition of atmosphere, when one of these materials expands, the other contracts, and that then the bells cannot oscillate so easily,—you will form some idea of the care and attention they require to keep them in ringing order. Well, suppose screws to get loose, and to remain so during many successive generations of screwing churchwardens, the iron straps to become corroded, thin, weak, and then to snap, the gudgeons to wear away unequally by the friction, and thereby to throw the bells out of the horizontal,—you can imagine what the consequences must be. The bells revolve heavily, the framework shakes and creaks, and the ringers, who have no voice in the vestry, and no power over parish moneys, do what they can to remedy some of the evil, and the very thing they do only increases the mischief. They put wedges between the framework and the walls of the tower to stop the creaking; but the result of this is to set the walls shaking, and finally to destroy them. Or if this does not immediately happen, the clappers of the bells get out of order, and, striking the sound-bow suddenly in a fresh place, cause them to crack instantly.

While upon the subject of Wiltshire bell-lofts, I cannot refrain from expressing another regret. I have been frequently much pained by observing the shameful state of filth and neglect of many of them. Generally speaking, the dark winding stone staircases (when they have any) leading to them, are dirty, worn, and difficult to tread, and you have to cork-screw your way up with very careful step, and when you have secured your footing, and you begin to congratulate yourself on having passed every obstacle, you suddenly come upon a huge heap of sticks, straw, feathers, bits of cloth, and other rubbish, the patient and laborious work of indefatigable jackdaws. When the towers have no stone staircase, the bells have to be reached by a succession of crazy ladders, planted on equally crazy floors.

How very shameful that any part of God's house should be so neglected! Why should towers be so desecrated? Are they not really as much a portion of the church as any other part? Why should they be left to the sole occupation of unclean birds, and profane and irreverent ringers! Why, the very jackdaws, starlings, and owls used to stare at me, and linger among the bells before they took flight, wondering, perhaps, what sort of evil bird I was, and with what possible object I had intruded unbidden into the territory to which generations of parishioners had given them a prescriptive right.

We come now to the second division of the subject—

Bell Founders and Foundries.—When you examine a church bell, you will generally observe, that, besides a legend, or some quaint epigraph upon them, there are also the initials or the name of the founder, and sometimes the town is added where the foundry was situated. The number of bell-founders whose bells exist in Wiltshire, amounts to between twenty and thirty. This appears a large number, but you must recollect that they range over a period of 300 years at least. I have a list of upwards of sixty founders, which I have collected chiefly from inscriptions on bells, but they are not found in Wiltshire only. I do not say that these twenty or thirty founders had their foundries in this county, but you will nevertheless be gratified to hear that Wiltshire has produced some of the most eminent men of this craft: I allude to Wallis, Danton, and the Purdues of Salisbury in the sixteenth and seventeenth centuries; to the Corrs and Wellses of Aldbourne, in the seventeenth, eighteenth, and nineteenth centuries; and in the eighteenth century, to Richard Phelps, of Whitechapel, London, a native of Avebury, who cast the great clock bell of St. Paul's Cathedral, weighing nearly four tons. It will be, I believe, a new thing to the people of Salisbury to hear that a very large bell-foundry existed here for a considerable period. I have ascertained that it continued to supply Wiltshire and other counties with bells for a period ranging from 1581 to 1731, and yet it is a very remarkable circumstance that no tradition of its existence has been perpetuated in the city. I have searched in vain through published histories of Salisbury, and have been equally unsuccessful in my inquiries here among those gentlemen who have made its antiquities and history their study. Not one vestige remains of the foundry, nor a single record of its site has yet come under my notice. I have, however, been informed that the street called Culver-street, was also called Bellfounders-street, and it is just possible that it stood there. That the foundry must have been large and its business extensive, is evident from the very large proportion of bells in Wiltshire that came from it; and also from the fact that the heaviest bells in the county were cast there. It could not have been an insignificant foundry that produced such bells as the tenor of St. Edmund's church, and the tenor of Great Bedwyn. The earliest founder in Wilts with whom I am acquainted, was J. Wallis, of Salisbury, and his first bells are to be found at Little Bedwyn, Bishopstone, Figheldean, Netheravon, St. Martin's, Salisbury, &c. There appears to have been an extraordinary demand for his bells; and he seems to have been a man of few words, but of great deeds.

With the deaths of the Purdues end the really great works of this foundry. They had successors, but the giants of the art were no more, and with Clement and William Tosier closes the history of the Salisbury foundry about the year 1731. Their bells are to be found in the immediate neighbourhood, at Nunton, Homington, Winterbourne, Dantsey, Shrewton, Orcheston St. Mary, &c. but they are all of small dimensions.

The Corrs of Aldbourne were founders of church bells as early as 1696, and although this foundry must have supplied a vast number of bells in their days, as well as in the days of their successors, the Wellses, I cannot discover that any very great work issued from their hands, compared with that of their brethren of the craft at Salisbury.

The Composition of Bell-Metal.—In the Liberate Roll, 26 Hen. III. sec. 12, is an entry of 1,050 lbs. of copper and 500 lbs. of tin, and the metal of an old bell, to be melted up with it to make three new bells for the church of the castle of Dover. In the circle of mechanical arts published by Mr. Martin, a civil engineer, in 1813 (354), it is stated that in bell-metal there is about one-fifth of tin. And in the "Penny Cyclop." tit. "Bronze," it is stated that Dr. Thomson found English bell-metal to consist of—

Copper	80·
Tin	10·1
Zinc	5·6
Lead	4·3
	100·

Bell-metal, therefore, consists principally of copper and tin, in certain proportions, but each bell-founder has his secret mode of amalgamating his metals. I believe that the best bell-metal is compounded of four parts of copper to one of tin. It is quite an error to suppose that silver enters largely into the composition of some bells. When the bells of my own church were taken down the other day for the purpose of re-stocking them, it was observed that the canons had become white in parts where there had been some friction, and I could not convince the workmen that it was tin and not silver which they saw. They knew better; and only wished they could have the bells to extract the precious metal which they contained. It has been stated by those who know much more about this matter than I do, that "silver, if introduced in any large quantity, would injure the sound, being in its nature more like lead, as compared with copper, and therefore incapable of producing the hard, brittle, dense, and vibratory amalgam called bell-metal."—("The Bell," by A. Gatty, p. 30).

It is very certain that ancient bells have a better and more mellow tone than the generality of modern ones. The tenor bell of Ogbourne St. Andrew, which was cast in the fifteenth century, and weighs about 15 cwt. cannot be surpassed for richness and dignity of tone. This superiority is owing, no doubt, to several causes,—first, to a larger weight of metal than is commonly given now to a bell of the same note; secondly, to a better admixture of the metals; and, thirdly, probably to the method then adopted of fusing the metals, viz. by a wood fire, which not being so hot as that of coal, does not reduce the inferior parts to a state of fusion, but they are thrown away as scoria or dross. *See* "Ecclesiologist."

Method of Casting and of Tuning Bells.—The art of bell-founding and tuning was brought to great perfection by Abraham Rudhall, of Gloucester, whose foundry has passed into the hands of the Messrs. Mears. When the size and proportions of the bell to be cast have been determined, four things have to be prepared,—first, the crook; second, the inner mould or core; third, the outer mould or cope; and, fourth, the crown.

The crook is a kind of compass formed of wood, and is used for making the moulds. One leg of this instrument is curved to the shape of the inner side of the intended bell, and the other takes the shape of the outer side; and they are made to revolve round a pivot fixed to a beam above, and the lower end driven firmly into the ground. The inner mould, or *core*, is built up of brickwork round this pivot, having a hollow space in the centre for a fire; and the face of the brickwork is then covered with a composition of clay and other materials, and moulded by one of the legs of the crook into the shape of the inside of the bell. It is then baked, by means of a fire in the hollow, and, when hard, is greased and coated with another composition, which is made to take the exact shape of the outside of the bell, by a few revolutions of the other leg of the crook. This is also hardened by the fire, and upon it are placed the inscriptions and ornaments in relief. Over this, when it has been washed with a composition of grease and tan, the outer mould, or *cope*, is formed; and, finally, the *crown* or head of the bell, for the formation of the canons, is then fitted to the top of it. The whole having been burnt, the cope is re-

moved, and the inner thickness of composition representing the bell destroyed, so that when the cope is again put over the core, there is a space between the two of the shape and thickness of the bell, and into this space the metal is allowed to run.

When the bell is to be cast, the core is placed in a pit close to the furnace, the cope and crown are carefully fixed over the core, and the whole is rammed round tightly with dry sand, leaving nothing exposed but the holes in the cap or crown, for an air-hole, and the other for the fused metal to run into.

As soon as the metal is cool, the bell is dug out, and, if one of a peal, carried into the finishing department for the purpose of being tuned. Formerly this was done by chipping the inside of the bell, or by cutting away the edge of the lip. But Mr. Rudhall, of Gloucester, invented a simple machine for accomplishing this object. It is nothing more than a vertical lathe driven by steam power. The bell to be tuned is fixed very firmly in an inverted position, and a powerful cutter, working on a pivot placed within it, diminishes its thickness if too sharp, or, by cutting away the edge of the lip, reduces its diameter, if too flat. It must have been a very difficult operation for Mr. Lawson Huddlestone, by the process of chipping, to modulate the sound of every bell in a peal till they answered exactly the intervals of the monochord, and more particularly in those cases where the bells had been cast at different periods by different founders, and with different metal. But it appears that this gentleman, who had a passion for bells, used to pass days and weeks in belfries in this laborious work; and thus tuned the peals of Colerne, Shaftesbury, Knoyle, and St. Cuthbert's, Wells.

Bell-hanging.—When a bell is ready, the next operation is to hang it in the church tower; and here in England one or two great changes have been introduced in the mode of doing this. It is, perhaps, one of the most difficult of all the operations connected with bell-fixing, and requires the greatest care and skill of the person employed. I must here begin by saying that a great deal of the mischief to which I have alluded in speaking of belfries, arises from the unscientific manner in which bells are too often hung now. It is too frequently the practice for parishioners or churchwardens, when the bells require it, to send for the village carpenter, who knows about as much of bell-hanging as he does of geology, in the comfortable but vain notion of saving parish money. Bell-hanging is an art of itself, quite distinct from that of bell-founding, and like it has secrets of the trade. It is of the utmost consequence that the stock, or piece of wood to which the crown of the bell is fixed, should bear a due proportion to the size of the bell, and the length of the staple from which the clapper hangs. If this is not attended to, the clapper will not strike the bell properly. This is determined on sound principles of dynamics. But what can a village carpenter, who never fixed church bells before, know of that science! And what must be the result of his unskilful efforts!

Before the introduction of change ringing, it was not of so much consequence how the stock was made, because bells were then only chimed. But as soon as they began to be swung rapidly to and fro on their gudgeons, and rung in time, it became necessary to reduce the proportions of the various parts of their harness to fixed rules and principles, which can only be known by those whose business it is to make them their study. Among others who can be recommended for their intelligence and skill in this department, may be mentioned Mr. H. Boswell, of Pembroke-street, Oxford, and Mr. James Ansell, of London.

One important part of bell harness remains to be noticed, viz., the wheel. This is, in fact, the powerful lever, by means of which the bell is moved; and it has undergone some changes. It is not probable that the full wheel was employed much before the year 1677. Before that period bells were moved by means of a short piece of wood fixed at right angles to the stock, or by a half-wheel, which was in use in 1527, and is still to be met with in Dorsetshire, at Dunchideock, Devon, and in Guernsey. The half-wheel was all that was required for chiming, but it could not answer the purposes of change-ringing, in which it is necessary that the bell should be *set*, *i. e.* turned up, and rested against the slider or catch, each way. For explanation of this operation, see the *Builder*. Several changes also have taken place in the mode of attaching the clapper, which I will only allude to now. There are models upon the table explanatory of three of these modes, one being the ancient and another the modern method. An excellent article upon the subject, by Mr. Ellacombe, has recently appeared.

Expenses of Bells, &c.—There are many entries to be found in parish account books which throw considerable light upon the history of bells and bell-founders; and among other things, the value of bell-metal, old and new, with the cost of casting bells, per cwt. is accurately given, *e. g.* from the churchwardens' accounts of St. Margaret's, Westminster, we find that in the year 1592, bell-metal was worth 56s. the cwt. From that of Steeple Ashton, in this county, we learn, that in 1616, it was worth 5*l.* 12s. In 1630, the accounts of St. Thomas's Church, in this city, tell us that it maintained the same value, and that the cost of casting was 14s. the cwt. In 1663, we find from the same accounts that the value had risen to 6*l.* 6s. and that old bell-metal fetched 4*l.* 5s. In 1716, the vestry of the same church agreed with Mr. Abraham Rudhall, of Gloucester, that he should have 7*l.* for casting the second bell, and 1s. per lb. for any additional metal. In 1769, the parish of St. Mary, Marlborough, agreed to give Mr. Robert Wells, of Aldbourne, 6*l.* 10s. per cwt. for a new third bell, and were to receive 4*l.* 13s. per cwt. for the old metal. And now the price varies from 6*l.* 10s. to 6*l.* 15s.; but if frames, carriage, hanging, journey, &c. are included, the cost is about 7*l.* per cwt. and old metal realises about 4*l.* 4s.

Ancient Bells.—In the Archdeaconry of Wilts there are 107 churches, of which I have examined the bells of 59, with an aggregate of 288 bells, and of this number only 11 are clearly of a date prior to 1500, 8 are of the sixteenth century, and 130 belong to the seventeenth century. Out of 448 bells in this county, 26 belong to a period prior to 1500, 18 to the sixteenth, 193 to the seventeenth, 131 to the eighteenth, 59 to the nineteenth century, and 21 have no date or inscription. And this rarity of bells of the fifteenth century is not confined to Wiltshire only; although the proportion of bells of that date in other counties may be greater, *e. g.* in the Framland hundred, county Leicester, which contains 38 churches and 127 bells, there are as many as 23 of an ante-reformation period ("Ecclesiologist, vol. iv."). The cause of this rarity throughout England I will explain presently.

Epigraphs or Legends.—When speaking of bell-founders, I have mentioned some of their characteristic epigraphs. There are some other curious ones, which I shall here introduce. At Aldbourne, on the first bell, we read, "The gift of Jos. Pizzie and Wm. Gwynn,

> Music and ringing we like so well
> And for that reason we gave this bell."

On the fourth bell is,—

> "Humphry Symsin gave xx pound to buy this bell,
> And the parish gave xx more to make this ring go well."

A not uncommon epigraph is,—

> "Come when I call
> To serve God all."

At Chilton Foliott, on the tenor, is,—

> "Into the Church the living I call,
> And to the grave I summon all.
> Attend the instruction which I give,
> That so you may for ever live."

At Devizes, St. Mary, on the first bell, is,—

> "I am the first, altho' but small,
> I will be heard above you all."

And on the second bell is,—

> "I am the second in this ring
> Therefore next to thee I will sing."

Which, at Broadchalk, is thus varied:—

> "I in this place am second bell
> I'll surely do my part as well."

On the third bell at Colne is,—

> "Robert Forman collected the money for casting this bell
> Of well disposed people, as I do you tell."

At Bath Abbey, on the tenth bell, is,—

> "All you of Bath that hear me sound
> Thank Lady Hopton's hundred pound."

On the fifth bell at Amesbury is,—

> "Be strong in faith, praise God well,
> Frances Countess Hertford's bell."

And, on the tenor,—

> "Altho' it be unto my loss,
> I hope you will consider my cost."

At Stowe, Northamptonshire, and at St. Mary the Virgin, Oxford, we find,—

> "Be it known to all that doth me see
> That Newcombe, of Leicester, made me."

At St. Michael's, Coventry, on the fourth bell, is,—

> "I ring at six to let men know
> When to and from their work to go."

On the seventh bell is,—

> "I ring to Sermon with a lusty bome,
> That all may come and none can stay at home."

On the eighth bell is,—

> "I am and have been called the common bell
> To ring, when fire breaks out to tell."

At St. Peter's-le-Bailey, Oxford, four bells were sold towards finishing the tower, and in 1792, a large bell was put up, with this inscription:—

> "With seven more I hope soon to be
> For ages joined in harmony."

But this very reasonable wish has not yet been realised; whereas at St. Lawrence's, Reading, when two bells were added to form a peal of ten, on the second we find,—

> "By adding two our notes we'll raise,
> And sound the good subscribers' praise."

THE BRITISH ASSOCIATION AT LIVERPOOL.

The members of the British Association have had a brilliant session in the newly-inaugurated St. George's Hall, the southern wing of which was reserved for their use. The opening address by the Earl of Harrowby was delivered in the Philharmonic Hall, and was largely attended. A preliminary meeting, however, of the general committee, had previously taken place, at which routine matters were transacted, Mr. William Hopkins, the president of last year, in the chair. At this meeting the council's report was read. The chief points in this report related to Lieut. Maury's navigation scheme, to promote which a department of the Board of Trade had been established; to the pension-list so far as regards men of science, who, according to Lord Aberdeen, are only entitled to come in "below the salt," and as little better than paupers; to an attempt to improve the position of science and its cultivators in this country by Government or Parliamentary measures, as to which no report had as yet been made; and to the concentration of the scientific societies in some central metropolitan locality, as to which Sir W. Molesworth had intimated that the societies at Somerset House had peculiar claims, and would have a preference in the allocation of the site.

The address, by the Earl of Harrowby, was as full of details as to the progress of science, as if it had been delivered by one of our more strictly professional *savans*. This his lordship candidly attributed to memoranda by some of these *savans*, incorporated with his own excellent discourse; and thus, perhaps, even a better, and at least a more general review of different branches of science was given than if the address had been limited to the personal experience of any one man of science. This departure from established practice has too much real merit and convenience not to be hereafter drawn into a precedent, even by men of science themselves, in giving a comprehensive review of the progress of science. Of the importance of his general subject, his lordship manifested a warm appreciation. In regard to the association of Liverpool and its commerce with science, he said:—

"It cannot be for nothing that the heroes of every branch of science are assembled from many countries within these walls, and are brought into personal contact with the most enterprising and public spirited of our merchants; that, in the language of my distinguished predecessor in this chair, slightly adapted,

'the counting-house is thus brought into juxta-position with the laboratory and the study.' Commerce will more than ever be auxiliary to science—and science more than ever the helpmate of commerce—and a still further impulse will be given to those beneficial influences, which, in spite of some painful though necessary interruption, occasioned by our present state of war, a good Providence is so visibly extending over the whole habitable globe. * * * There is no town which owes more to science than does Liverpool. Without science can her vessels stir without danger out of sight of land, or walk the waters independent of wind or tide? Without science would they have docks to shelter them, railroads to bring their produce to the docks, telegraphs to announce their movements, manufactures to freight them to distant lands? I do not believe that Liverpool is insensible to her obligations. This magnificent reception is one evidence of the feeling; but a still better is to be found in her liberal support to such institutions as the public libraries and museums, as her Collegiate Institution and her Mechanics' Institute, and, above all, to her magnificent observatory."

The Earl of Derby next addressed the meeting. His lordship modestly admitted himself to be a little out of his element there as a speaker, and having heard by chance probably of those "queer fishes" of the "pre-historic period" occasionally found "out of the water," expressed himself as belonging to "that earlier period"—the "pre-scientific" era—as his friend the Earl of Harrowby hinted—which excluded him from such society as that in which, very much to his own surprise, it appeared, he found himself holding forth. But, for all that, his lordship made a very graceful and appropriate speech.

Sir C. Lyell followed. Professor Phillips read the programme of the first day's proceedings, and the business of the session in the sections began on the following day.

THE LATE MR. GEORGE FIELD.

Mr. George Field, the author of "Chromatics, Chromatography, and Outlines of Analogical Philosophy," died last Thursday, the 28th ult. in his own little museum of literature, art, and science. The public will be glad to hear something of a man who has done so much for the improvement of our artists, and the extension of a pure taste for the beauties of nature.

Mr. Field was born at Berkhampstead, in the year 1777, of a respectable family, located in that township for ages, for we learn from Clutterbuck's "History of Hertfordshire," that one of his ancestors, George Feilde, was in 1546 educated at the same school of St. Peter's, Berkhampstead, where our own George Field received, two centuries and a half later, under Dr. Dupre, the education that led to such happy results.

At about eighteen years of age, rather than continue an incumbrance on his widowed mother, he resolved to come to London, and having no defined prospect, to look about him, and contrive a profession for himself, based on his acquirements, his industry, and independent feelings. He thought he saw an opening in the careful application of chemistry to pigments and dyes, and he made the attempt. Our war with the Continent, by stopping our supply of madder from Holland, threatened to impede his progress.

This, however, led him to consider the nature of its cultivation; and with a well-devised project, he waited on Sir Joseph Banks for his advice, and, he hoped, his co-operation, so as to carry it out on a scale commensurate with the wants of the nation. In this he was disappointed: Sir Joseph had already made an unsuccessful attempt at the cultivation of madder in Essex, and determined that it was not to be done in England. Thus reduced to his own humble resources and requirement, Mr. Field commenced the cultivation in his own garden, and from roots of his own growth, produced specimens of the colouring matter incomparably more beautiful than any before seen. This was a prosperous step at the right moment. So far, cultivation and chemistry had served him well; but an ingenious contrivance, both mechanical and chemical, was still wanted to reduce the liquor to its finest consistence. His invention of the percolator by atmospheric pressure admirably accomplished this purpose. With that liberality which always impelled him to dispense knowledge and truth to all mankind, he made this discovery known to the Society of Arts, Sciences, and Manufactures. That society awarded him their medal for the communication; but, strange to say, the invention was patented by others several years after, and applied to the clearing of sugar: in the West Indies it realised a large fortune, before the real history of the invention was known, or a more economical method was adopted.

Whilst others were largely benefiting by his discovery, Mr. Field continued his humble but useful application of science to the purposes of the artist with good effect: his dexterity and care in the preparation of delicate colours set all competition at defiance, and the charm of his writings enticed artists into the wholesome considerations of science, and a higher appreciation of nature and of the dignity of their profession.

Among the discoveries he made by way of instructing us in the theory of light and colour, we must particularly notice his metrochrome and his conical lenses, which produced a continuous rainbow, with varied effects of refractions.

Mr. Field's knowledge was not restricted to subjects in relation to optics, chemistry, and the fine arts: his outlines of analogical philosophy contain a large amount of information on many branches of human knowledge. During the last two years of his life, his physical sufferings were great, but they were mitigated by his own resignation, sweet temper, and high principle.

SUFFOLK INSTITUTE OF ARCHÆOLOGY AND NATURAL HISTORY.

A general meeting of the members of this association has been just concluded at Ipswich, which has been visited by a considerable number of the antiquaries of Norfolk and Suffolk. The proceedings commenced with an exhibition of antiquities in the council-chamber, the chief contributors being the corporation of Ipswich. The collection comprised several objects of archæological interest.

The president of the institute (the Rev. Lord Arthur Hervey) occupied the chair at the meeting held after the inspection of the antiquities, and, after some congratulatory remarks, his lordship read a letter received from Major Bunbury, detailing some interesting researches made in Bulgaria by the gallant writer. Major Bunbury stated that the objects which had most excited his attention at the camp at Aladyn were some large rough columns, varying in size and much honeycombed by time. He had not been able to trace any inscriptions upon them, though they were from 9 to 10 feet in diameter, and from 12 to 15 feet in height. They appeared to be more like Druidical than Greek remains; and in the absence of any positive information respecting them, Major Bunbury had come to the conclusion that they were sepulchral monuments.

Papers were read by various members. The first was by Mr. W. S. Fitch, upon the ancient Corpus Christi guild of Ipswich, including extracts from MS. by Nicholas Bacon, kept in the muniment room of the Ipswich corporation, beginning with the 23rd Henry VI. and ending with the 23rd Charles I. A second paper, from the same gentleman, contained extracts from the household book of Sir John Howard, afterwards John, Duke of Norfolk (killed at Bosworth Field), purporting to be the "election expenses" of himself and Sir Thomas Brewse, of Little Wenham Hall, in the election of members of Parliament for Suffolk, in the 7th Edward IV. A third paper, by Mr. Phipson, treated of the celebrated "Sparrowe's House," in the butter market.

Excursions of inspection were made to Sparrowe's House, and from thence to Little Wenham Hall, Wrexham, Washbrooke, and Capel churches. At Washbrooke, the party was joined by Sir F. Kelly, M.P. and several other country gentlemen. Papers were read on Little Wenham Hall, by Mr. Jackson, and on Capel church, by Mr. Tymms; and the pleasures of the day were much enhanced by the extreme fineness of the weather.

INDUSTRIAL COURTS IN THE CRYSTAL PALACE.

On the other side we have sketched three of the industrial courts in the southern half of the Crystal Palace, at Sydenham, namely, the Court for Musical Instruments, and the Printed Fabrics Court, both on the east side, and the Sheffield Court on the west side. Of the two former we give an exterior view from the nave, and of the latter an interior view.

The *Musical Court* is remarkable for the large amount of modelling with which Mr. John Thomas, by whom it was designed, has ornamented it. The elevation facing the nave is designed to set forth pastoral and primitive music. The entrance is surmounted by a bust of Apollo, and we have heads of Pan, pipes, shells, and appropriate foliage. The return-front is made to symbolise sacred music: figures of Miriam and David, angels with trumpets, and a bust of Jubal, with suitable inscriptions, bear out the intention.

Over the side entrances, within, and facing each other, are figures in alto-relievo of St. Cecilia and Erato, with quotations from Dryden and Collins. Over each arched recess is a bust of some eminent composer, and between each of these project fanciful columns, on which stand boys playing on different instruments. Panels in the frieze between the children contain bas-reliefs of musical instruments and foliage.

The *Sheffield Court* was designed by Mr. G. H. Stokes, the son-in-law of Sir Joseph Paxton, and to whom, we believe, all the architectural details of the main building and terraces were entrusted. The principal feature of this court is a double arcade of Moresque columns and arches on the top of the enclosure walls, above which an ornamental pent-house is carried by perforated brackets of large projection. Iron and glass is largely used in the construction, and the whole is characterised by appropriateness.

Messrs. Banks and Barry designed the *Court for Printed Fabrics*, and have shown their skill in decoration. It is designed in a free style, adapted from the Italian; and has large glazed openings for the display of goods.

We may mention that a picture gallery is being formed in the north wing of the Crystal Palace. The collection appears to be mainly confined at present to a number of paintings from Belgium, but will doubtless speedily be increased.

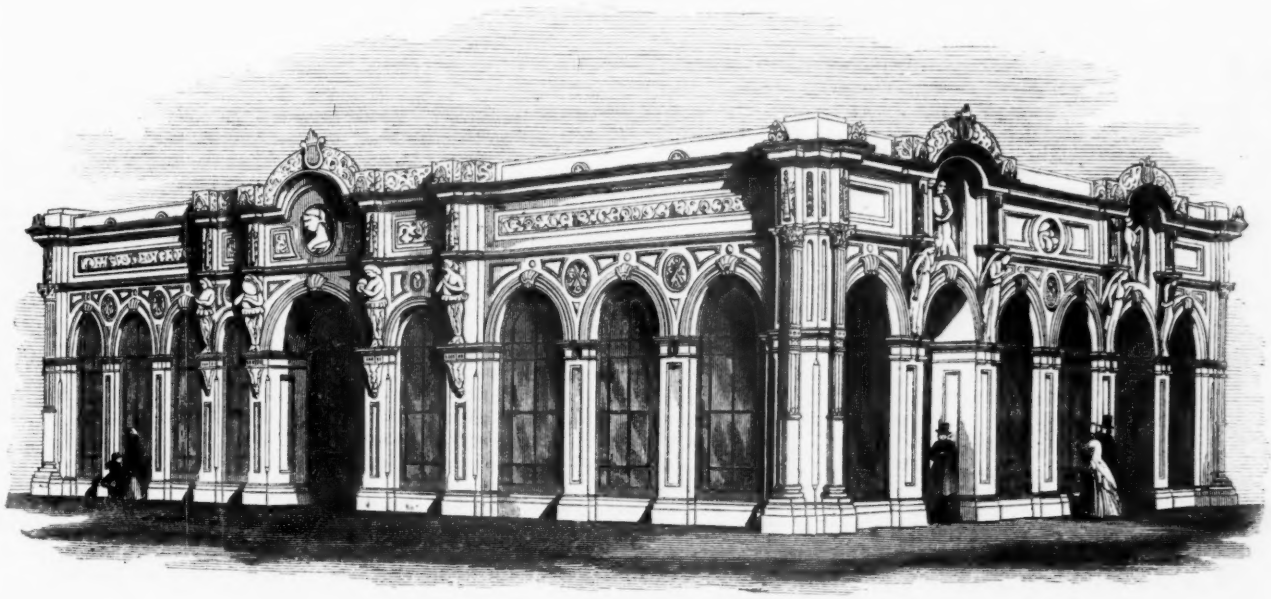
THE YOUNG MEN'S CHRISTIAN ASSOCIATION.

The committee of this excellent association have fitted up the building long used as the City of London Literary Institution, in Aldersgate-street, for similar purposes, and they trust that under the principles of management adopted at their library and reading-rooms in Gresham-street, it may increasingly serve the comfort, convenience, and solid improvement of the numerous class of young men who are engaged in the great commercial establishments in the vicinity. We may hope, too, that the members of many families resident in the neighbourhood will avail themselves of its advantages, and that the institution may thus exercise a large and beneficial influence.

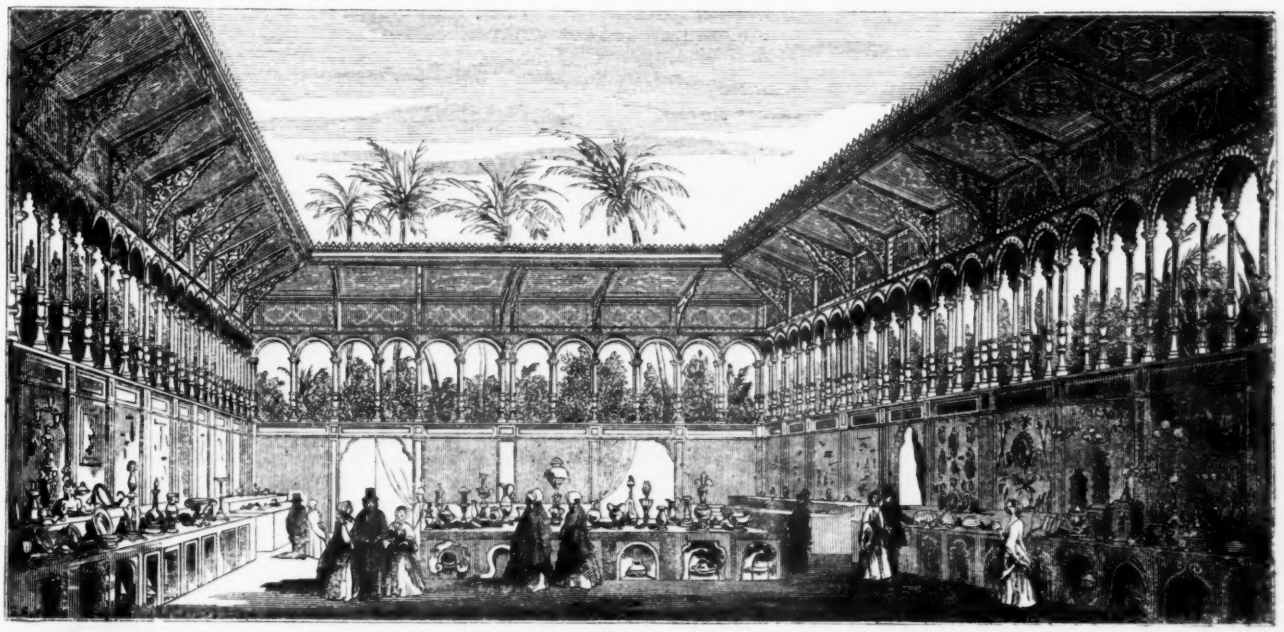
Under the direction of Mr. Maberly, architect, works to a considerable extent have been done by Messrs. Haward and Nixon. The reading-room, where coffee, too, will be served, has been handsomely decorated, and here a few days ago a large party of influential persons, presided over by the Hon. Arthur Kinnaird, met to inaugurate the establishment, and some excellent speeches were made. The institution offers great advantages at small cost, and is entitled to strenuous support.

The Burning of Boulogne Theatre.—During the visit of the Emperor of the French to Boulogne week before last, the theatre there was destroyed by fire, originating, it appears, in the end of a lighted cigar having been carelessly thrown down in the costume-room, when it set fire to some of the dresses. Here is just another instance in which the saturation of all such properties in a silicate such as we long since recommended, would have saved the whole theatre. It is also said, that had there not been a misunderstanding between the English Water Company and the Corporation, for which the latter are blamed, the fire might have been extinguished in five minutes. The Emperor, on hearing of the accident in passing, left his carriage, and superintended the operations in person.

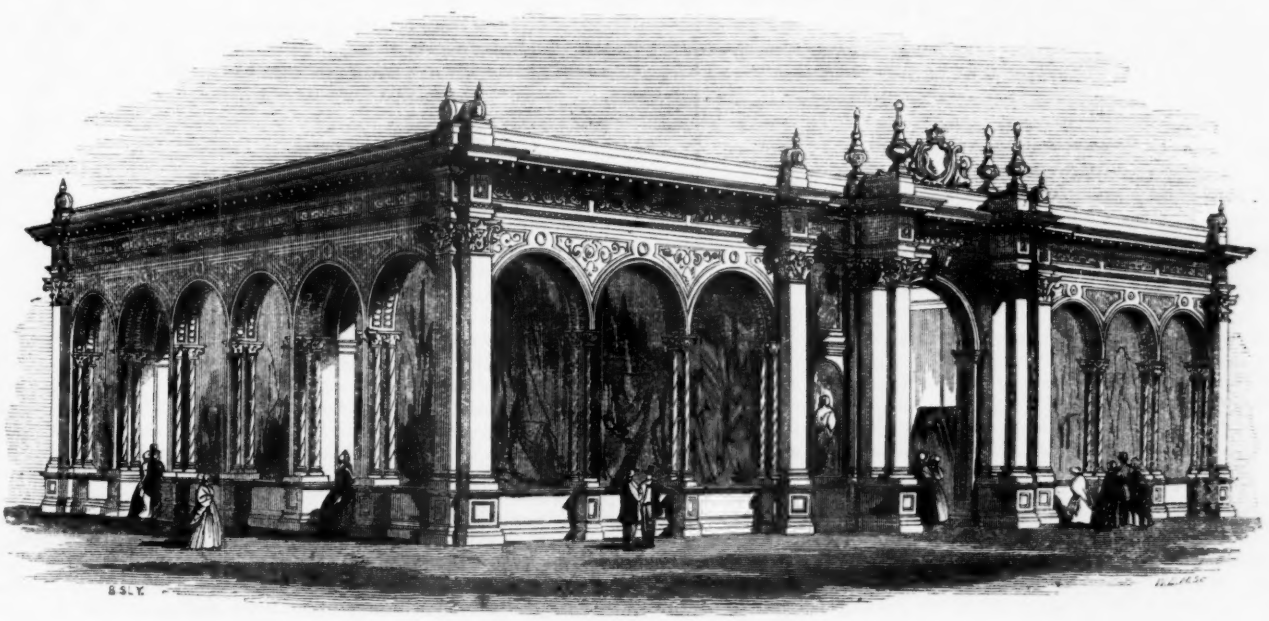
INDUSTRIAL COURTS, CRYSTAL PALACE.



The Musical Instruments Court.



The Sheffield Court.



The Printed Fabrics Court.

PROVINCIAL NEWS.

Wisbech.—The demolition of houses from the bridge to the King's Head for approaches to the new bridge is in progress, and the eastern side of Cornhill, where lately stood a row of houses, tenanted by tradesmen, is now an open space, covered with *debris*.

Bedford.—A new hall for lectures, exhibitions, &c. is about to be erected here by shares.

Oxford.—The industrial schools in course of erection in this city are nearly completed. They were lately visited by the Vice-Chancellor, as an *ex officio* guardian under the new Act. The building has also been visited and approved by the Government inspector. Mr. Bruton is the architect.

Worcester.—The committee appointed at last quarter sessions of the county of Worcester to return the names of three eligible gentlemen for the office of county surveyor have, after investigating the testimonials of twenty-two gentlemen, unanimously agreed to recommend Mr. Henry of Worcester, Mr. Alexander Milne of Northampton, and Mr. Henry Rowe, jun. of Worcester.

Gloucester.—The arrangements for water supply from the Severn are nearly completed, and the pumping was to commence in the early part of this week. It is estimated that the pump will raise 300,000 gallons of water to the reservoirs at Robin's Wood Hill every twenty-four hours.

Ludlow.—The new Cattle-market committee have decided on plans. Mr. Cranstoun, the architect, having furnished the council with two plans for the new market, and also an estimate of the expense of making the same under each, the committee, after some discussion, unanimously resolved that plan No. 1 should be adopted, and the town clerk was instructed to take the necessary steps towards obtaining an amendment of the present Act.

Burslem.—Messrs. Lee and Stevenson, the engineers to whom the drainage of Burslem has been entrusted, are now preparing contractors' quantities, &c. and it is hoped that the local board of health will shortly be able to advertize for tenders, and early in spring proceed with the works. The system to be carried out is a medium between the small pipe and large drain, comprising both, and adapting them to the peculiarities of the district.——The new town-hall works, under the superintendence of the town surveyor, are now up to the first floor; although the progress of the works has not been so rapid as was anticipated. The covered market has been entirely cleansed, the interior whitewashed, and the interior and exterior repainted. These, with extensive repairs to the roofs, and re-stalling, have placed the market in a good state of repair.

Wednesbury.—A public meeting of the inhabitants of Wednesbury and the vicinity was held at the Town-hall, on Wednesday in week before last, to consider the means of providing an efficient supply of water to that district, under an Act obtained in 1853, which gave powers for the supply of water to Lichfield, Walsall, Wednesbury, Bilston, Darlaston, Willenhall, Sedgley, Tipton, West Bromwich, Rowley Regis, Dudley, and Oldbury. A report of Mr. Henry Marten, C.E. was read, stating that he had made accurate gaugings of the Lichfield streams, and that, notwithstanding the long drought, the Pone's Mill stream continued to yield over 2,000,000 gallons a day. The Seedy Mill stream at present yielded 1,250,000 gallons a day, but would in the winter months and in wet weather pass a much larger volume of water than the Pone's Mill stream. The whole of this water could be conducted, without any expense of pumping, to the works at Lichfield. The area from which this body of water was obtainable was nearly three times the extent of that supplying the large reservoir of the Birmingham Canal Company at Cannock Chase. With properly-constructed storage reservoirs, a quantity of eight to ten million gallons a day might be depended on, if necessary, from these two sources. A local committee was formed to aid in carrying out the objects of the company in the Wednesbury district. It was stated that the company could either supply each house, or a local company in bulk, and that a 10*l.* house could be charged 7s. 6d. per annum. The company's maximum rate was 7½ per cent. or 15s. a year on a house not exceeding a 10*l.* yearly rental. A large number of shares was at once subscribed for.

King's Norton.—On Wednesday week the remains of the large chimney belonging to Lifford Chemical Works, near this village, erected by the late Mr. Pratt, fell down with great force upon a portion of the roof of a large piece of building on the premises used by Mr. Phipps (who is working the clay mine) as a drying-house for his bricks. The stack, which was almost the last remains of the once extensive works, was recently, with other portions of the dilapidated buildings, purchased by Mr. Phipps, who, having partially undermined the same, had invited friends to witness the destruction; but owing to the excavation having gone too far, the stack gave way before the time appointed. The chimney was commenced in 1837, and when completed was the loftiest stack in the locality of Birmingham. About 50 feet of the top was blown down on January 6th, 1839, since which time it has remained imperfect, owing to the works not having been occupied.

Liverpool.—The delays occasioned by the opening of the bridges for vessels to pass out of the St. George's Dock, have led to a suggestion that tunnels might be constructed beneath the bridges, the cost being met by time saved and increase of public convenience.

Bradford.—A new school building has been opened in the neighbourhood of Spinkwell. It has been built chiefly by the Congregationalists, and has cost about 700*l.* It is in the old English style of architecture, and is capable of seating between 300 and 400 people. Its present use will be a Sabbath school and preaching room, but, eventually, it is expected that a day school will be opened in it.

Dewsbury.—National schools have been commenced for the district of Westtown Dewsbury, in Yorkshire, in the midst of a poor population. The site is a narrow slip of ground, with the upper end towards one high road, and the lower end towards another, with a fall of 26 feet in a length of 150 feet from one road to the other; on which account the buildings are detached, and placed lengthwise across the ground; the boys' and girls' school, with class-room, being at the lower end, and the infants' school and master's house near the upper end. The architect is Mr. E. W. Tarn, of London: the mason's work is taken by Mr. J. Brook, of Dewsbury, for 555*l.*; and the carpenter's and joiner's work by Mr. J. Moseley, of Huddersfield, for 280*l.* The other works are taken by parties in the town, making a total cost of 1,070*l.* a portion of which will be defrayed by Government grant. The large school has an open timber roof, with curved ribs, the style being Perpendicular Gothic, to accord with that of the adjoining church. The whole will be built of a hard sandstone from the immediate neighbourhood. The accommodation will be for 250 boys and girls, and 70 infants, with a six-roomed house for the master.

Grantham.—The public baths here, erected from the designs and under the superintendence of Mr. Thomas Oliver, jun. of Sunderland, architect, have been formally opened by the town council of the borough. During the first four days 500 persons availed themselves of the baths. It is already proposed to increase the accommodation, a plan of which has been prepared by the architect.

South Shields.—The South Shields Baths and Washhouses were formally opened on Wednesday week by the mayor and corporation. They have been erected on a plan by Mr. Thomas Oliver, jun. of Sunderland, architect; the masonry, &c. having been executed by Mr. Richard Cail, and the plumbing and engineering work by Mr. Henry Watson, both of Newcastle-upon-Tyne. ——The Town-hall, markets, &c. according to the *Gateshead Observer*, will next engage the attention of the South Shields corporation, and we have no doubt, it adds, that it will not be long before it can boast, in the centre of its noble market-place, of a building worthy of the borough, and fit for all municipal and public purposes, without addition to the local burthens of the ratepayers.

North Shields.—The working plant of the North Shields gasworks has been sold by auction.——Since the North Shields Baths and Washhouses have been in operation, their success, according to the local *Gazette*, has been highly satisfactory. From an estimate of receipts and expenditure for five weeks from 5th August, the day on which they were opened, the following result has been obtained:—Income: baths, 39*l.* 6s. 10d.; washhouse, 8*l.* 10s. 3d.; total, 47*l.* 17s. 1d. Expenditure: wages—superintendent, 7*l.* 10s.; fireman, 3*l.* 15s.; assistant, 12s. 6d.; total for wages, 11*l.* 17s. 6d. Coals, 7*l.* 1s.; water, 200,000 gallons, at 9d. per 1,000 gallons, 7*l.* 10s.; gas, 5,100 cubic feet, at 4s. per 1,000, 1*l.*; towels, 318 doz. at 1d. 1*l.* 6s. 6d.; books, 2*l.* 16s. 6d.; interest, five weeks on 2,700*l.* at 4 per cent. 10*l.* 7s. 8d.; rent (the site of the building being leased from his grace the Duke of Northumberland for sixty years at 10*l.* per annum), say 1*l.*; making a total expenditure of 42*l.* 19s. 2d. and leaving a balance of 4*l.* 17s. 11d. in hand to meet accidental expenses, alterations, wear of machinery, &c.

PROCEEDINGS FOR DILAPIDATIONS.

Twentyman v. *Hodson.*—This was an action brought in the Bloomsbury County Court, before Mr. D. D. Heath and a jury, by the plaintiff, a gentleman residing at St. John's-wood Park, to recover of the defendant, a well-known bookseller, the sum of 37*l.* 16s. for amount of dilapidations not repaired, agreeably to a specification sent in by Messrs. Lockwood, surveyors. It appeared in evidence that Mr. Hodson had been tenant of a house in the Avenue-road, St. John's-wood, on a repairing lease, at 180*l.* per annum, determinable at the first seven or fourteen years. After residing there eleven years, he underlet to a Mrs. Foster, who now occupies the premises. During his tenancy he had erected some greenhouses and other improvements. On the approaching expiration of the fourteen years he was served with notice to repair, and one specification was sent in by plaintiff's surveyors, who, in reply as to what it would cost, said about 113*l.* As the covenants of the lease regarding repairs had been strictly complied with, he thought this too much, and elected to do them himself. Mr. Hodson then applied to Mr. Indermaur, his attorney, who requested Mr. Friend, a surveyor, to get the house thoroughly repaired, and not to spare expense, but to do everything that possibly could be required. Mr. Lockwood was called, who stated he had gone over the premises in company with Mr. Parker, surveyor, and that they were left in an unfinished state. He apprised the defendant, and proposed a resurvey, and to leave it to any disinterested person. He found the roof was bad, the walls of the hall and staircases were papered, instead of painted; and in repairing the marble paper and revarnishing, bad varnish had been used. The greenhouse walls, flues, and chimneys wanted repairing. The drains and cesspools were left defective. All these several works had to be done. The grates in the house had been blackleaded, which ought to have been kept bright. The finger-plates on the drawing-room doors were originally white and gold china, and now they were replaced by black ones. Several other things were left unfinished; the knobs to the windows and knobs of dresser-drawers: the seat of a closet was also left unpolished. Mr. Parker said he went over the house, and his estimate of what had been done was 28*l.*

For the defendant, Mr. Simpson, a builder, stated that Mr. Friend had given him general instructions to repair the house, which he had done. The drains had been thoroughly cleansed, but Mr. Lockwood, in doing his work, had turned the current, which was an alteration of the original. He left the house, including the roof and interior, in the most perfect order. Mr. Alfred Friend, surveyor, said he had given orders to the last witness to do what was necessary. He had since surveyed the premises, and they were fit for any gentleman to inhabit. Mr. Abrahams, surveyor to the Duke of Norfolk, said he had surveyed the house, and it was in the most perfect repair, according to the covenants of the lease. The closets and drains were in good action, and the roof was in excel-

lent order. He made the suggestion that the blocks of marble paper in the hall should be repaired. The hall papering is not a dilapidation. There are several opinions on that subject, but he would not advise contention in such a matter. He considered a tenant for fourteen years had a right to use his discretion in putting up paper instead of painting during his tenantry; and he considered the papering a hall in this manner an improvement upon paint.

Plaintiff's counsel replied, and dwelt upon the defendant paying 5*l.* into court as a proof that he had not done all that was required.

The judge, in summing up, explained to the jury what was meant by fair "wear and tear," and said that some portion of this claim was for what would be included under that head. The defendant's witnesses had proved the roof to be in good order. The course of the drains had been altered by Mr. Lockwood after they had been repaired, as proved by Mr. Abrahams and Mr. Friend. About the hall and staircase there is no evidence before me, he continued, that it was painted originally, and that other ornamental furnitures were white and gold that are now said to be black. I take Mr. Abraham's view of the matter as a very reasonable one, that defendant was justified in papering the hall instead of painting it, and also that blackleading the stoves is not an injury to come under the name of dilapidations. In respect to the greenhouse, it was built by the defendant; but the question was, whether he had a right to take it all away. He certainly had a right to take the greater part away, but he chose to take a small sum of money, instead of having litigation; and I think it would be unjust, as it was sold, to call upon him to repair the walls.

The jury immediately gave a verdict for the defendant, on the ground that he had done all that he was required to do.

BUILDING INTELLIGENCE FROM IRELAND.

The committee for the amalgamation of the gaols of the city and county of Waterford have determined upon an increased accommodation, with a view to the better arrangement of the different classes of prisoners, which it seems has been hitherto very deficient. Plans are being received from different parties, for the conversion of the present buildings into one common gaol, for the clasification of debtors, convicts, contempt prisoners, vagrants, &c. and will comprehend generally the following accommodation, viz. fourteen yards, with day-rooms attached; 300 cells for prisoners; twenty separate cells; chapel, to contain 200; governor's apartments; two hospitals, for twenty patients each; workshops, laundry, &c. The county prison, as at present existing, occupies a space of 1a. 2r. 1p. and that of the city, 3r. 20p. which, with other available ground, gives a total of 3a. 1r. 29p. for the intended space.

Our correspondent informs us, that the present structures are of such a nature as to prevent the carrying out of an effective system of discipline, and we are induced to hope that the plans (for which a premium of 50*l.* has now been offered), may serve to overcome all difficulties. The report of the committee condemns the system now pursued, the sewerage, and the general accommodation, as insufficient.

The first stone of a new cathedral at Ballaghadereen, has been laid. The site is on the highest ground, near the town. A lofty tower, projecting 16 feet (with deeply-recessed doorways), and terminating with spire and floriated cross, is situated centrally on western side. In the eastern gable, is a window (of seven bays and traceried head), width, 12 feet; height, 21 feet, to springing of arch. The plan consists of nave, chancel, aisles, and lateral chapels, dimensions, interiorly, being, 171 feet by 61 feet in the clear. Roofs to be of open Memel timber, the principals being arch ribbed, stop chamfered, boarded, stained, and springing from stone corbels. Style, Gothic, of fourteenth century. Mr. J. S. Butler, architect.

The new R. C. church at Rosstrevor is to be dedicated shortly.

Generally speaking, the building trade is dull through Ireland, owing to the increased price of materials.

The O'Connell monument is at length commenced, the first stone having been laid last month by Sir J. Power, Bart. As our readers are aware from a former description in the *Builder*, it consists of a small church, round tower (160 feet high), and ancient stone cross, after a design by Dr. Petrie, and is situated on a rising ground, in Glasnevin Cemetery, Dublin, where the remains of O'Connell are laid. Mr. P. Byrne is the architect, and Mr. Mayers the builder.

The new church at Ballybrack, has been dedicated and opened. It is situated on the south side of Killiney-hill, county Dublin, style, decorated Gothic. The plan is cruciform, length being 100 feet by 60 feet, in width. Scripture scenes representing the Annunciation, Nativity, Crucifixion, and Resurrection, also the Four Evangelists are displayed in stained glass. Mr. Byrne is the architect: Messrs. Doolin, builders.

ST. JOHN'S, DEPTFORD.

MUNIFICENCE.

On Monday, the 2nd instant, the first stone of St. John's Church, Deptford, was laid by the Archdeacon of Middlesex. The church will be a gothic structure of large dimensions, beautifully situated on a hill adjoining the Lewisham road. A number of the clergy and gentry of the neighbourhood were assembled on the occasion. Archdeacon Sinclair stated that one munificent individual had placed 10,000*l.* at his disposal to build a church, parsonage, and schools in the parish of Deptford; and that to meet this contribution, he had been presented by another liberal friend of the church (James Lucas, esq.) with an elegant villa and garden, for a parsonage, and also with commodious sites for the church and for schools.

ARTISTICAL NEWS FROM ABROAD.

Kaulbach's Work at Berlin.—Instead of Muhr, who is gone to Italy, Kaulbach's younger brother works now at the completion of the "*Hunnenschlacht*," which will occupy one of the walls preceding the staircase of the new Museum of Berlin. The fifth of these historical allegories will represent the Crusaders.

The Germanic Museum and the Duke of Coburg.—This collection is intended to become a great national undertaking, and to be located (at present) at *Nuremberg*. Still, the Duke of Coburg has repeatedly expressed his readiness, that if these hopes should be frustrated, he adheres to his former promise to have the museum brought to Coburg, where the extensive antiquarian collection of Coburg Castle has been of late perfectly rearranged. His royal highness also intends to build a chapel and family vault on the Glockenberg, near Coburg; the chapel to be of the Byzantine style, in the form of a basilica, 80 feet long, 70 feet broad, and 60 feet high. It will consist of one principal and two lateral naves, the latter to be the mausolea of the Coburg family.

An Idea for the Crystal Palace.—At a late meeting of the Nether-Rhine Society, Colonel Siebold stated, that Professor Göppert, in Bresslau, had put into practice the idea of Humboldt concerning botanical physiognomic groups of plants. The colonel further added, that being the proprietor of a botanical establishment at Leyden, he had arranged groups of Japan plants, which had been acquired by several superior *educational* establishments of Germany. Still, there was some difficulty in placing together groups of analogous families of plants, nevertheless dissimilar in the temperature and other conditions required for their growth. The intrinsic reproductiveness of a similarly planned garden might recompense for any trouble or expense.

Practical Aspects of Art in the United States.—New York.—The engraving after *Leutze's* picture, "Washington's Passage of the Delaware," enjoys here a great popularity and sale, but would sell still better if it were strikingly illuminated. Colours exercise a great influence on people not yet educated to the viewing, as it were, of abstract forms. Sculptors and carvers find here a prolific field, as every day the sumptuousness and luxury of the interior of the houses in decorations, furniture, &c. progress in a ratio hardly dreamed of in Europe. In especial favour are also engravings of Swiss scenery and striking *genre* pieces—the antecedents and the ground for hope that successively that rich and wealthy nation will increase in the love and patronage of *art*.

BLACKFRIARS' CROSS, HEREFORD.

During a recent sojourn for two or three days in the city of Hereford, I paid a visit to this beautiful cross. It is, as no doubt many of your readers are aware, in the form of a hexagon, open on each side, and surrounded by a flight of steps. From a base of the same figure in the centre, with two trefoil arches on each side, springs the shaft of the cross, which, spreading out into ramifications, forms the roof of the pulpit; and through this roof the shaft passes. A buttress supports each angle of the cross, and the upper part of it is embattled. I much regret to find it in a very dilapidated state; so much so, that it is evident, unless something is speedily done to preserve it, it must fall: several cracks appear in the roof, and some of the stones in the buttresses are fast going to decay. All who have seen it will, I am sure, be sorry to lose so beautiful and interesting a memorial. I trust soon to see it restored, or, if this cannot be done, to see some measures taken to arrest the decay. Lessons may be learned, and people instructed, by these remains of the piety and art of our forefathers, and I think that the worthy and learned dignitary of the cathedral church in that city, who is doing so much for the education of the people and the promotion of art, must have forgotten this beautiful structure. I regret also to observe that the restoration of the cathedral, though commenced and in a great measure completed, has not been proceeded with for a long time.

O. S.

VALUE OF LAND.

CRYSTAL PALACE RAILWAY COMPANY.

An inquiry took place before a jury at the Horns at Kennington, on the 26th and 27th inst. to assess the value of 2 r. 25 p. of freehold building land (and severance), situate in York-crescent, on the north side of Crown-hill, Norwood, Surrey, the property of Mr. Divers, required by the Crystal Palace Railway Company. Several witnesses were examined for the claimant, including Mr. Ellis, Mr. Stroud, and Mr. Corner, who valued the land at 4,174*l.* and the severance at 4,506*l* making the total value, 8,680*l.* On the part of the company, Mr. R. A. Withall, Mr. Charles Lee, and Mr. William Rogers, surveyors, were examined, whose valuations were respectively 400*l.* 458*l.* and 500*l.* Mr. Bovill and Mr. Hawkins were counsel for the claimant, and Mr. Wells for the company. The inquiry occupied the whole of two days, and resulted in a verdict for 650*l.* which included the severance!

KILKENNY ARCHÆOLOGICAL SOCIETY.

The September meeting of the Kilkenny and South-east of Ireland Archæological Society has been held; Lieutenant-General McDonald, C.B. in the chair; when thirty-five new members were elected.

Since the last meeting, the museum has been considerably enlarged, and one compartment was entirely devoted to the display of the splendid collection of rubbings from English sepulchral brasses, presented, some time since, by Mr. Paget, brother of the Marchioness of Ormonde. The secretaries laid on the table the proceedings and transactions of the July meeting of the society, now ready for delivery to the members. Various donations were received, and thanks ordered to be given to the donors.

The principal feature of the meeting consisted in the large number of Ogham monuments brought under notice, the existence of two of which was now for the first time made known to archæologists. Mr. Graves directed the attention of the meeting to a very fine example of this class of monument, presented to their museum by Mr. Hugh N. Nevins, of Waterford. Mr. J. C. Tuomey, master of the Burnderrig National School, Wicklow, communicated the discovery of a fine cromleac and hitherto unnoticed Ogham monument, situate near the church of Castletimon, parish of Kilbride, and barony of Arklow, county of Wicklow. Of the Ogham he sent a rubbing, and a graphic paper descriptive of the monument.

General M'Donald observed upon the universality of the tradition respecting the casting of remarkable stones by giants in every Celtic country. A remarkable boundary stone on his own property, in the Highlands of Scotland, was said to have been flung across a neighbouring lake by a Fenian hero.

The Rev. James Goodman, and Mr. J. D. Macmahon forwarded papers treating of Tullachs (burial-places). They were ordered to be printed in the transactions, together with other written communications made at this meeting.

Mr. Prim drew attention to a peculiarity in the ancient street architecture of Kilkenny, connected with a shop in High-street, traditionally said to have formed the residence of the regicide Axtel, whilst governor of Kilkenny.

Mr. Clarke informed the society that since last meeting he had found, at Kilereene, another very small sepulchral cist, somewhat similar in character to the *second* then mentioned.

Mr. Edward Hoare, of Cork, communicated an account of a hitherto unedited Hibernico Danish coin, with engravings which he notified his intention of presenting to the society.

Mr. Graves stated, with reference to the recent extraordinary discovery of gold ornaments in the county of Clare, a portion of which, purchased for upwards of 700*l.* at the current price of gold, he had recently seen in Dublin, that he had been informed by Mr. F. Barnes, C.E. the then contractor of the Limerick and Ennis Railway, that the discovery had been made about two miles north of the town of Newmarket-on-Fergus, whilst ditching the line.

Mr. Clarke called attention to the broken condition of the curious old cross of Dunamaggin, so faithfully illustrated in Mr. O'Neil's work on the ancient crosses of Ireland.

A paper was read at this meeting on the promontory of Hook, county of Wexford, by the Rev. James Graves, which excited an interesting discussion.

FALL OF A MANUFACTORY AT SHEFFIELD.

A SERIOUS casualty occurred on Saturday week, at the Castle Mills, or Tower Wheel, an extensive manufactory in Sheffield, for rolling steel, grinding cutlery, &c. The outer wall, which was of brick, and about 30 feet by 90 feet long, fronting towards the Wicker, fell down and brought with it a row of workshops abutting on it. Eight persons, men and boys, were extricated from the wreck, several of them being injured in a distressing manner. One of the workmen had noticed, on the erection of some new boilers a few months ago, that a portion of the outer wall had bulged, and that one of the piers had sunk considerably. He was, however, assured by the masons who were then working that the building was perfectly safe. Immediately after the occurrence Mr. S. Parker, the proprietor, instructed Mr. C. Fowler, C.E. to ascertain the cause of the accident, and carefully examine the building. The cause, it appears, has been traced to the imperfect manner in which the tension rods, intended to strengthen the arches which formed the floor of the five fallen "hulls," had been inserted. The rods at one end were cottered to the inside of the iron girder resting on the pillars, while the other ends, instead of being cottered, were merely hooked over the upper flange of the V girder inserted in the outer wall. The vibration from the working of the machinery and the expansion and contraction of the rods, had gradually worked the hooked ends out of their position. From the fact that all the hooked ends of these rods were found perfect, except one, which is broken a few inches from the end, it has been surmised that this single rod had retained its position, and for some time had been the only one rendering any material support, and that it suddenly broke at the instant the outer wall fell. It is somewhat singular that the only part of the work ever observed to be defective was left standing, while the remainder of that side fell. The saving of this portion is attributed to the outer wall having been strengthened by the erection of the flue pillar. Mr. Fowler, according to the local *Independent*, has received instructions from the owner to prepare plans for rebuilding the fallen portions of the premises of such strength as to preclude the probability of future failure.

Notices of Books.

The Irish Industrial Exhibition of 1853. Edited by JOHN SPROULE. Dublin: M'Glashan. London: Orr and Co. 1854.

THIS is a large and handsome volume, somewhat in the style of those containing the record of the Industrial Exhibition of 1851. It comprises a detailed catalogue of the contents of the Irish Exhibition, with critical dissertations, statistical information, and accounts of manufacturing processes in the different departments; together with numerous illustrations in wood, a litho-chromotype view of the central hall of the Exhibition, and a portrait of Mr. Dargan, its mainstay, engraved in steel, and accompanied by a memoir. In the outset of the volume, there is a well-written introduction, followed by a detailed description of the building, with diagrams and sketches. The editor has been aided by various contributions made by other competent writers, and the whole constitutes a very full and complete record of an exhibition, the like of which may not be seen in Dublin again for many a year, if even in the present generation.

Miscellanea.

RAILWAY MATTERS.—On Sunday morning before last a fatal accident, occasioned by the falling of some massive wooden supports in one of the archways of the Caun viaduct, occurred to a young man belonging to Moulsham. When the railway was made, the footpath from Moulsham to Writtle, near Chelmsford, was cut off by the high embankment, and was carried round under the first arch of the viaduct, a raised causeway formed of a brick wall 2 or 3 feet high, capped with stone, being made to protect it from the flood. In this archway the woodwork of the centering on which it was built was left, together with the rows of square timbers which supported it, as some protection, it appears, against the lateral pressure of the embankment, upwards of 40 feet high, that might be brought to bear on it. This arch was a common resort of children and loiterers from Moulsham; and as it now appears that the woodwork was in a dangerous state, having stood eleven or twelve years, and the timber supports having become decayed from the wet, it is fortunate that a greater sacrifice of life had not taken place.——Mr. Bullenor, contractor for making the roadway of the new branch railway from the Crystal Palace to the Brighton Railway, was crushed to death lately by some waggons containing earth, and drawn by horses.——The launching of the cylinder for the Royal Albert-bridge, across the Tamar, was noted by us some time since. The operation of lowering this immense cylinder, within which is to be built the entire pier for the support of the bridge, has since been effected. The cylinder, constructed under the superintendence of Mr. Campbell, the engineer of the works, and weighing 300 tons, being 90 feet in length, 37 feet in diameter at the top, and 35 feet in diameter at the bottom, was not only floated successfully from the shore of the Tamar to the centre of the river, but has been there sunk, perpendicularly, to the rock, penetrating through 14 feet thickness of mud, and at high tide it is covered by water to within 6 feet of the top. When completed, this work will rival the Britannia Tubular Bridge for daring and effect.

ELECTRO-TELEGRAPHIC PROGRESS.—Farther experiments, it appears, have been made by Mr. Lindsay of Dundee with his new patent transmarine telegraph without submarine wires. Messages have been transmitted across the harbour at Portsmouth, a distance of 950 yards, from the Blockhouse Fort to the Sallyport round tower, and notwithstanding the intervention of a number of copper-bottomed ships, immense iron chains, &c. (!) the success of the experiment is said to have been complete. The subject excited some interest and discussion at the Liverpool meeting of the British Association, where the chairman of the section engaged in the discussion declared his opinion that such a telegraph might be practicable between Dover and Calais, or even between Europe and America! One essential condition of success, if we mistake not, is that the land wires on each side must consist of a coil of a certain length, increasing in proportion to the length of transmarine conduction. It is nearly ten years, it is said, since Mr. Lindsay discovered the possibility of making such a telegraph.

CAMDEN-ROAD CHAPEL.—The first chapel erected by the Baptist Metropolitan Chapel-building Society, has been opened. It is situate on the top of Carlton-hill, in the Camden-road, about midway between Camden-town and Upper Holloway, in the parish of St. Mary's, Islington. According to our informant it is built in the perpendicular style of Gothic architecture, of Kentish rag-stone, faced with Bath-stone dressing, and has two towers in front. The interior roof is open-boarded. The baptistery is of enamelled slate. The chapel is 101 feet in length, and 58 feet wide, and will seat nearly 700 persons. The building has cost in all the sum of 5,265*l.* The architect was Mr. C. G. Gearle.

OAK: AN INQUIRY.—A handsome new oak door which was put into the south entrance to our parish church in 1845 has become, in consequence of exposure to the sun during the last nine years, of a dull dirty mouse colour, and is a sorry sight for the eye. We should feel much obliged if you would recommend a treatment for it which will enable it to bear the exposure it is always sure to meet with so long as the sun rises in the east and sets in the west,—if there be any. Would simple varnish answer the purpose? A reply in your valuable journal might be of great service to churchwardens and others.

O. W. W. F.

*** Some of our readers will perhaps favour us with their experience on the subject.

BATHS AND WASHHOUSES FOR KIDDERMINSTER.—The first stone of this long talked of establishment, has at length been laid. The site is in Mill-street. The building will be in the Italian style, having a frontage of 78 feet, being 30 feet high, and reaching 50 feet back towards the Stour. It will be of red brick, with stone dressings, and as Mill-street is liable to floods, the basement, to the height of 3 feet 6 inches, will be of Ombersley stone. The brackets at the top and cornices will be of terra cotta. There will be two entrances in front, one for male and the other for female visitors. The swimming bath will be 37 feet by 30 feet, varying in depth from 4½ feet to 5½ feet. It will also contain a plunging bath for ladies, 10 feet by 10 feet: each of these will be enamelled with Stourbridge clay. There will be four first-class men's baths, one vapour bath, and eight second-class; two first-class ladies' baths, and two second-class. The washhouses are 40 feet by 16 feet, in which there will be eight boxes to accommodate ten women at a time, each woman having the use of three tubs. Mr. Goodwin, whose premises adjoin, has kindly offered to have gear put upon his wheel, by which water will be supplied to the premises, thus saving the expense of an engine on purpose. It is expected that the building will be finished in January of the ensuing year. Messrs. Ashpitel and Whichcord are the architects; Mr. Dean, clerk of works, and Mr. H. Ankrett, the builder. The cost will be defrayed by the assistance of Government loan, repayable by yearly instalments. The mayor laid the first stone on Friday in last week. The establishment was originally called for by a memorial of 400 ratepayers to the town council.

IRON THEATRE FOR AUSTRALIA.—Messrs. E. T. Bellhouse and Co. of Manchester, are constructing an iron shell and framework of a portable theatre for Australia, which, with all fittings and appurtenances, will cost a sum exceeding 4,000*l.* The building is to be 88 feet in length, 40 feet wide, and about 24 feet high from the ground level to the peak of the roof. As the floor level of the pit will be sunk about 5 or 6 feet below the ground level, and hence will really be a *pit*, there will be considerable altitude in the interior. The walls will be of cast-iron, uprights (Bellhouse's patent), and galvanized corrugated iron sheets, No. 18, wire gauge. The roof will consist of iron principals, having the galvanized sheets bolted thereon. To the gable end of the building, which forms the front, will be attached an ornamental appendage arranged as box and pit offices, lobbies, and entrances. Ornamental effect will be given to this façade. The pit will extend back from the footlights to the wall below the boxes about 54 feet, and be 59 feet across. The gallery for the boxes will project 24 feet from the wall opposite the stage, and 8 feet from the wall on each of the sides of the theatre. This gallery will be supported on iron columns and strong framework of timber. Messrs. Bellhouse undertook the complete shell of the building, the ornamental façade, and principal framework of the interior, and had engaged to have the whole on board ship in London in about thirty days from the date of contract.

LIGHT ON NORTH LONDON AND KEW JUNCTION RAILWAY.—Can you inform me on what principle of justice or equity the metropolitan omnibuses, passing through well lighted streets, and where a policeman can be hailed at a moment's notice, are compelled to carry a lamp inside as a protection to twelve passengers, while the second-class carriages on this line, passing through two tunnels, and holding at least thirty persons, are left in complete darkness? The medical profession contrive to prevent a good deal of injustice, by having a solitary member of their body in the House of Commons. We must really endeavour on the next vacancy in Finsbury to return Mr. Wilson, the omnibus proprietor, as a representative. —W. H. B.

LOSSES.—We have to notice with regret, the death of Mr. E. W. Brayley, long the esteemed coadjutor of Mr. Britton, and the author of the "History of Surrey;" of Mr. Bartlett, well known by his illustrated works, especially on the East; of Mr. Willson, the architect, of Lincoln; of Mr. Brockedon, and some others known to our readers. We hope to put on record before long some particulars of each of these gentlemen, and to express the sorrow with which we regard their loss.

IMPROVED DWELLINGS.—A deputation from "The National Association for the Improvement of the Dwellings, and for the Elevation, of the Labouring Classes," had an interview with Sir Benjamin Hall, at the office of the Board of Health, on Tuesday in last week, when their scheme of operations was submitted to him.

IMPROVEMENTS AT THE LONDON TAVERN.—During the last few weeks this great establishment has been completely redecorated, at considerable cost. The banquetting rooms have been newly fitted up, and additions made to the kitchen department.

The Justice-room in London Mansion-house.—Great complaints are again made of the want of ventilation in the Justice-room at the Mansion-house. The Lord Mayor believes that the only remedy is the removal of the Justice-room elsewhere. We drew attention to it some time ago.

State of Rochester.—We are not a little surprised to learn that much of the property complained of by "An Architect," who recently visited Rochester, as being in a filthy and disgusting condition, belongs to the Bridge Wardens, and that the slaughter-house which so offended his nostrils in the midst of a crowded population, is leased from the Corporation. Since "An Architect's" letter appeared in our columns, a stir has been made amongst the filth, and some of it cleared away, but not until there had been ten deaths from cholera in the neighbourhood of the very corporation slaughter-house complained of! [how many more elsewhere in Rochester at same time we do not know] and even yet, we learn, the surface is so saturated with abomination, that a stratum of it would require to be removed ere anything but a partial abatement of the nuisance could be effected. The fact of a slaughter-house, however cleanly kept, being allowed to occupy such a position, is bad enough, more especially as corporation property, but a corporation which not only makes a profit of such a nuisance but allows it to become so beastly and so deadly in its influence, ought to be themselves indicted as a nuisance. One notable circumstance we find recorded in a Rochester paper by the Rev. R. Whiston in regard to these Rochester nuisances is, that in five fatal cases of cholera in St. Nicholas', the victims were married women whose husbands (elsewhere occupied throughout the day) escaped the pestilence. So much for those who maintain that bad smells have nothing to do with cholera.

The Russian Fortifications.—There is another *contractor* to blame, it appears, for the utter insufficiency of the formidable-looking Russian fortifications, besides the Bomarsund contractor. "John Frost" would appear, from the following valuable scrap of information, direct from Bomarsund itself, to be one of those enormous offenders whom the Czar ought to "send to Siberia," only he is there already. "I shall bring home a piece of the granite of Bomarsund for you," writes an officer: "*it breaks almost as easily as coal.* The intense cold of this climate destroys even stone in a few years." Upon this hint let Napier act. If too late till next "session," Cronstadt and Helsingfors may, in more senses than one, be safely handed over, for the winter, to a stronger force than even British naval force, as a farther help towards their bombardment. There is doubtless much truth in what this officer writes, and of course it applies to all the Baltic fortifications. Why, the sand-baskets of Silistra are of tougher material than the granite batteries of Bomarsund, which seem much more to have resembled the ice palaces of their own native Russia. We shall be excused, we trust, for adding here, though rather irrelevantly, that *when* Sevastopol *is* demolished also, as it very soon will be, if it be not already, as so confidently rumoured—it is to be hoped the muzzled Menschikoff will *once more* be sent (though not by the Czar) to Constantinople, attended by as imposing a retinue of *adherents* as this Bombastes-Furioso had before. The *effect* would be excellent, even though somewhat tragi-comical.

Cemetery Chapel Competitions.—The account of a clay-brickæological design, sent in to the Ely Burial-board, is a very fair piece of satire upon the system (now becoming, it is to be feared, too easily and firmly established), for cheaply furnishing new burial-grounds with buildings. It must have gladdened the heart and awakened a train of thought responsive in the breast, of many a competing architect, who has been led to throw away his time upon the insignificant enterprises in Gothic architecture and landscape gardening that are offering themselves from time to time to the world-professional. If architects cannot stop this plan of putting on the screw, this evocation of a goodly array of designs, when the aggregate of premiums (if any be offered) may not amount to 10*l.*—let them at least do all they can to bring it into disrepute. If my memory fail not, plans were called for in one instance for a lodge to contain mourners' room and keepers' apartments for 200*l.* and two chapels for 600*l.*!—Vox Sepulchralis.

Inauguration of the Melbourne Athenæum.—On Tuesday in last week, the Melbourne Athenæum building, designed by Mr. H. I. Stevens, of Derby, architect, was opened with several festive associations. A good number of visitors and townspeople enjoyed themselves in the hall gardens, and on the lake and islets, to the music of three bands. In the evening tea was served in the lower room of the new building, and afterwards addresses appropriate to the occasion were delivered in the upper room, which was filled with a respectable audience of nearly 300. The building is designed for a threefold purpose—that of an infant school, mechanics' institution, and savings' bank.

Sale of a Portion of Giltspur-street Prison.—Messrs. Pullen and Son, auctioneers to the City Corporation, last week put up for sale the third portion of the materials of Giltspur-street Compter and House of Correction, comprising the whole of the stone frontage in Giltspur-street, and containing upwards of 2,000,000 stock bricks, 5,000 feet of sheet copper on the roofs, 10 tons of lead in gutters, tanks, and pipes, &c. The sale also included the whole of the timber in the roofs and floors, sashes, marble chimney-pieces, and interior fittings up of the governor's house, stone staircases, railed gate-fences, drying apparatus with machinery, iron steam-boilers, baths, pumps, gas-fittings, &c. The materials for the first day's sale were divided into eighty-nine lots, and those for the second, into ninety-six lots. These comprise the entire building. The whole is to be taken down to the level of the street, and removed forthwith.

Roman Remains at Bath.—At the late meeting of the Somerset Archæological Society, at Taunton, the Rev. H. M. Scarth, rector of Bathwick, read a paper on the subject of stone coffins, many of which have from time to time been found in the neighbourhood of Bath. He said that previous to the last meeting of this society in that city a discovery of several of these was made in Russell-street, one of which was opened and examined at the time of the meeting. Excavations were being made for the purpose of repairing a sewer, and while the work was proceeding four stone coffins were discovered, with the heads lying to the north-east. A wall, taking a north-east direction, was also discovered: it was 3 feet wide at the base, tapering towards the top, and constructed of rough-hewn stones, connected by mortar or cement. A portion of it was laid bare, and found to form part of a circle: this was 9 feet from the spot covered by the head of one of the coffins. It was supposed by some that this wall indicated an inclosure for the purposes of sepulture, but another view was that it served as a boundary between a burial place and the Roman road, which it is known ran along at the top of the street. Similar discoveries had been made at Combe Down, where also the remains of a Roman villa were found. If the coffins discovered at Bath were not actually Roman, there could be little doubt that they must be referred to the period just preceding the Saxon invasion, and be attributed to the Romano-British inhabitants of the island, who retained a Roman mode of life, while they fell far short of the Romans both in arts and arms.

Nuremberg Ironwork.—The *Art Journal* for the current month has a pleasant article on this subject, with ten illustrations. The papers on the Domestic Manners of the English contain references useful to architects and decorators.

Assyrian Discoveries.—According to the last annual report of the Royal Asiatic Society, the excavations of Mr. Taylor at Umgheir have satisfactorily proved the architectural plan of the Babylonian and Chaldæan temples, showing that they were built stage upon stage, with a single chamber at the summit as the adytum—in fact, in precise accordance with the description given of the Temple of Jupiter Belus, by Herodotus, 1181. The chronology of Assyria has received a valuable accession by the discovery of a record of one of the early kings, whose name is read Tiglath-Pileser, like that of the later King of Assyria known to the Hebrews. Tiglath-Pileser the First was shown to have flourished 418 years before the reign of Sennacherib, by a passage in an inscription which had been translated by Dr. Hincks, to whom Mr. Layard communicated a copy. The same learned scholar subsequently found a cylinder of Tiglath-Pileser in the British Museum, recording the construction of a temple at a preceding date, which he satisfactorily proved to correspond either with 1750 or 1840 B.C. This discovery he published in the month of July; and it is gratifying to be enabled to state that Colonel Rawlinson fully confirms this discovery, having since found a duplicate cylinder in a more perfect condition, which shows that the earlier date—or 1840 B.C.—is the correct one. The colonel's letter which communicated this was read at the meeting of the 4th March last. From letters more recently received from that gentleman, we learn that he has read the name of Semiramis on a statue of the god Nebo, dug up from the ruins of the Palace of Nimrod. Semiramis appears, in a legend upon the statue, to have been really the wife of Pul, king of Assyria, the same as is mentioned in the Book of Kings, the contemporary of Menahem, king of Israel. This would place Semiramis 150 years before Nebuchadnezzar, which will curiously confirm the tradition recorded by Herodotus, that this queen preceded Nitocris by five generations, equal to 150 years. It is observed by the colonel, that the works which Herodotus attributes to Nitocris were certainly erected by Nebuchadnezzar, as is duly attested by Berossus, and recorded in the "Babylonian Cuneiform Annals;" and he conjectures accordingly that Nitocris was the wife of Nebuchadnezzar.

The Iron Trade.—At the preliminary quarterly meeting of the ironmasters of the Birmingham districts, held on 28th ult. it was resolved to abide by present prices, but whether we are to understand by this the nominal prices fixed by themselves at their last quarterly meetings, or the actual prices at present realizable, it is hard to say. The oracle is becoming more and more equivocal at each successive sederunt on the iron *tripod* (*i.e.* "quarterly"). As for present prices, it is admitted that there is no doubt bar iron can now be purchased below the nominal quotations, even in Staffordshire. Pigs, too, have lately fallen at least 10s. a ton.

Museum of Ornamental Art.—The museum at Marlborough House was to be re-opened on Monday. During the recess the specimens have been re-arranged and considerable additions made. The collection of arms from the Royal armoury at Windsor will continue to be exhibited. An alteration has been made in the days of admission. In future the museum will be opened on Saturdays, which will be free days, instead of Tuesdays. This change has been made chiefly to enable the schools in the metropolis to send their students to visit the museum on the afternoons of Saturdays.

Locksmiths' Strike.—At the Wolverhampton Police Court, on Saturday week, Messrs. Moseley, locksmiths, summoned some workmen who, during eight days, had been out on strike for an advance of wages, for not completing work in hand. Defendants contended that it was a custom of the trade to leave unfinished work that remained so at the period at which a notice to strike terminated. The bench recommended the men to return and complete their work, adding, that if pressed for a decision, they must convict. Defendants' attorney recommended his clients to act upon the advice of the bench.

To preserve Steel Goods.—Mr. T. E. Minshal, of Westminster, has forwarded the following receipts for the information of an Oswestry correspondent:—Take of caoutchouc, one part; turpentine, sixteen parts. Dissolve with a gentle heat, then add boiled oil, eight parts. Mix by bringing them to the heat of boiling water: apply it to the steel with a brush, in the way of varnish. It may be removed when dry, with turpentine. The oil may be wholly omitted. Another and simpler method is to mix five parts of linseed oil varnish with three parts of rectified oil of turpentine, and smear the article over it by means of a sponge: then dry in a place free from dust.—*Journal of Society of Arts.*

TENDERS

For the execution of the works on the Economic Freehold Land Society's estate at Wood-green, Hornsey; Mr. John Wm. Milnes, surveyor:—

Watts (Poplar)	£1,382	4	10
Dodd (Hoxton)	1,350	1	3
Kelly (Bermondsey-wall)	1,315	1	0
Strickson (Kilburn)	1,246	15	4
Cole and Clements (Norwood)	1,066	2	6
Frasher (Bayswater)	972	15	4
Culverhouse and Nicholson (Finchley), accepted	* 967	0	0

For the Parochial Schools, Hampstead; Messrs. Habershon, architects. Quantities supplied:—

Legg	£3,512	0	0
Higgs	2,992	0	0
Myers	2,820	0	0
Newby	2,597	0	0
Rowland and Evans	2,564	0	0
Johns	2,470	0	0
Clever and Stanger	2,430	0	0
B. and C. Hayne	2,369	0	0

***** The tenders given last week were for the Christ Church Schools, at Hampstead. Both were opened on the same day.**

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"*Books and Addresses.*"—We have not time to point out books or find addresses.

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